

**United States Department of Agriculture
Agricultural Marketing Service
Directive**

3130.3

6/9/03

BROWSER-BASED APPLICATION DEVELOPMENT

I. PURPOSE

This Directive provides guidance for the development of AMS browser-based applications that will be hosted on the AMS Internet or Intranet servers. *Browser-based applications are those that use an Internet browser program such as the Microsoft Internet Explorer or Netscape Navigator to run the application on the client computer.* Any AMS program developing a browser-based application should reference this Directive when writing the Statement of Work or during the Requirements Analysis Phase. It should also be referenced prior to the application's development for a complete listing of application requirements.

II. REPLACEMENT HIGHLIGHTS

This Directive replaces AMS Directive 3130.3, Web-Based Application Development, dated 4/16/02. Changes are marked with asterisks.

III. POLICY

It is the policy of AMS that all browser-based applications comply with Agency standards to allow applications to be operable and efficiently administered by the Information Technology Group (ITG) and the programs. *Exceptions to the use of these standards shall be approved in advance by the Chief Information Officer (CIO).*

IV. AGENCY PLATFORM

Each application shall be designed to operate in the following environments:

A. Agency Internet and Intranet Servers:

- 1) Windows 2000;
- 2) Internet Information Server 5.0;
- 3) *.NET Framework; * and
- 4) Application Servers.

*Note: The FrontPage 2002 Server Extensions, which are currently installed, are scheduled to be removed in 2003. *

B. *Browser-Based Applications: Browser-Based Applications are required to use the following environment:

- Visual Basic.NET;
- SQL Server 2000; and
- Microsoft Installer (MSI) for the application installation.

Exceptions to use development environments other than Visual Basic.NET for new browser-based systems must be approved in writing by the CIO in advance of any application development.*

C. Client Platform: The current Agency client platform is Windows 2000. Testing of Intranet-based applications should include Windows 2000 and XP. Internet-based applications shall be accessible by commonly used browsers for all platforms, including Windows, UNIX and Macintosh.

*Note: If the application is for public access, please note that the AMS Internet is still browsed by Windows 3.x clients, using Netscape 1.x and Internet Explorer 1.x. The application shall be developed for the appropriate technology level of the audience, as determined by the program. *

V. DEVELOPMENT PLANNING SESSIONS

A. Planning Sessions Consultation: When preparing to implement a browser-based application, the requirements must be identified to verify that the application will operate properly within the AMS environment. It is recommended that AMS programs consult with the ITG to discuss the application's requirements as follows:

- 1) During the development of user requirements;
- 2) Prior to the start of the project;
- 3) During status meetings;
- 4) Prior to application development (mandatory, see Section V.B., below);
- 5) During application development;
- 6) During the on-site installation and testing; and
- 7) After deployment, to ensure optimal performance.

Larger applications will require more consultation than smaller applications.

B. Mandatory Development Requirements: The following information must be provided to the E-Business Branch prior to application development:

1) Security:

- a. The security of the Agency Internet and Intranet servers is critical. Six weeks prior to the application's deployment, the requesting program shall develop or update a Security Plan for the application to be hosted on a server. Please contact the

Agency Information Systems Security Program Manager at 202.720.1234 for assistance in preparing a Security Plan for the application.

- b. Outline the development strategy to ensure conformance to the Security Plan. Be sure to address the items noted in Section VII.D., below.
- c. How critical is the system? Does the website need to be operational 24 hours a day by 7 days a week (24 x 7) or only during working hours? If it must be operational 24 x 7, when will maintenance be performed and by whom?

2) Section 508 of the Rehabilitation Act: The program shall ensure that all technology delivered complies with standards set forth in Section 508 of the Rehabilitation Act of 1973, as amended, particularly 36 CFR 1194.21-22. Outline the development strategy to ensure Section 508 compliance. For more information, see <http://www.section508.gov> and AMS Directive No. 3130.2, Section 508 Information Access Requirements.

3) Bandwidth Utilization Requirements:

- a. Identify whether the application will be Internet or Intranet based.
- b. Outline the requirements for each network transaction that uses the AMS website or Intranet site.
- c. Identify the estimated number of concurrent users.
- d. Identify the estimated number of total users, such as weekly, monthly, or seasonal patterns.
- e. Identify the estimated size of the database (number of tables, rows per table, etc.)
- f. Identify the estimated size of the application files.

*4) Hosting Strategy:

- a. Identify if the application will be Internet or Intranet based.
- b. Identify if the Agency or program will host the application, if it is Intranet based.

Note: All Internet applications shall be hosted on Agency-owned servers operated by ITG. Intranet applications may be hosted either on the Agency Intranet server or on a program-owned Intranet server. All Internet and Intranet servers shall comply with Agency and Departmental security standards and will be subject to periodic security audits. ITG shall be responsible for securing and maintaining Agency-owned servers. The programs shall be responsible for securing and maintaining program-owned servers. If applications are hosted on Agency-owned servers, each program is responsible for maintaining the unique functionality of their application and ITG is responsible for server functionality. *

5) Application Maintenance:

- a. Describe the backup strategy for the application (e.g., How often must backups be completed? Who will be performing the backups?).

Note: Applications hosted on Agency-owned servers shall be backed up by ITG. Applications hosted on program-owned servers shall be backed-up by the program. Specific backup documentation is described in Section VII.C.

- b. Describe the warranty or maintenance requirements of the system (e.g., Will the vendor correct any problems for 6 months following deployment?).
- c. *Describe how the unique functionality of the application will be supported by the program or a contractor. (e.g., If the application contains an error, how will the program or a contractor resolve the issue?) *

VI. RESPONSIBILITIES

A. The program developing the application shall work cooperatively with ITG and the E-Business Branch throughout the lifecycle of the project as described in Section V., above.

B. ITG and the E-Business Branch shall:

- 1) Provide pre-project consulting regarding the AMS environment;
- 2) Provide technical consulting and support during the development, implementation, and deployment phases of the project; and
- 3) Provide infrastructure support during the lifecycle of the application.

Neither the contractor nor the program shall discuss * Internet application features or availability* with the press prior to clearing this communication with the Public Affairs Staff and obtaining the concurrence of the E-Business Branch.

VII. DOCUMENTATION

Each browser-based application must have user, system, backup, and security documentation prior to implementation, as described below:

A. User Documentation: User documentation shall be provided to instruct the users in all facets of the application's functionality. The user documentation must be in the form of on-line help, and the following items are recommended:

- 1) Purpose of the application;
- 2) Step-by-step instructions on how to use the application, including screen captures;
- 3) A glossary of terms; and
- 4) Help or trouble-shooting guidance for each data field.

B. System Documentation: System documentation shall be provided to ITG prior to implementation for full support of the application. The system documentation must include a minimum of the following items:

- 1) Purpose of the application;
- 2) A listing of the hardware and software system requirements;
- 3) Detailed tables and structures (i.e., field definitions, views, table relationships, and stored procedures);
- 4) A listing of each file in the application, its location, and a description of its use;
- 5) A listing of the dependencies, such as, required permissions, DLL files, DSNs, supporting software/hardware, etc.;
- 6) A listing and description of any custom components that have been developed (i.e., Active X components and custom DLLs);
- 7) A listing of any application created files and their formats;
- 8) A listing of the stress and other testing that has been performed and the results;
- 9) A listing of likely failures and how to troubleshoot them;
- 10) A detailed set of installation instructions; and,
- 11) A program contact person to assist in support and troubleshooting.

C. Backup and Recovery Documentation: Data on the Internet is subject to the possibility of unauthorized access. For every application, a reliable backup source needs to be available in the event of data corruption. The backup and recovery documentation must include a minimum of the following items:

- 1) A listing of the files to be backed up;
- 2) A description of where the files are backed up;
- 3) A procedure documenting how the backup is performed and with what utility;
- 4) Who performs the backup;
- 5) A description of the procedure required to determine if the data has been compromised;
- 6) A description of how often this procedure is run and who performs it;
- 7) A listing of files that must be restored in the event of data corruption;
- 8) A procedure documenting how a restore is performed and with what utility;
- 9) Who performs the restore; and,
- 10) A program contact person to assist in support and troubleshooting.

D. Security Documentation: Security documentation is critical for maintaining the integrity of the application and must be provided to ITG six weeks prior to the application's deployment. The security documentation shall include responses to the following questions and concerns:

- 1) Who will be using the application? Will it be used exclusively by the Agency or by the public as well?
- 2) How will the application be accessed?
- 3) Who will be performing administration of the application?
- 4) Provide a listing of general user permissions required for using the application.
- 5) Provide a listing of administrative permissions required for application maintenance.
- 6) Is the entire application available to the general user or are certain areas restricted?
- 7) What security method is used to restrict access to the entire application?

- 8) Does the software require that any additional service packs or hot fixes be applied to the supporting software? If so, list the required service packs or hot fixes. If hot fixes are required, will they need to be reapplied after system changes?

VIII. OUTSOURCING

When a browser-based application is constructed and implemented using outside contractors for deployment on the AMS Internet or Intranet, the following requirements shall be addressed within the Statement of Work:

- 1) The contractor shall meet with ITG and program personnel prior to application development to discuss the AMS Internet/Intranet environment and any special requirements that the application may need. At this time, ITG must be provided with bandwidth, server, and other IT related requirements.
- 2) The contractor shall do all development and testing using non-infrastructure equipment. The AMS infrastructure equipment will not be made available for these activities.
- 3) The application shall be shown to work according to contract specifications prior to deployment on AMS infrastructure equipment.
- 4) Initial deployment will occur on the AMS developmental server during non-business hours (e.g., Sunday or early morning on a weekday with installation, testing, and rollback, if necessary, completed by 7 a.m.).
- 5) The contractor shall install the application on AMS infrastructure equipment under ITG supervision, along with program personnel.
- 6) ITG must be given a minimum of three days notice when scheduling a contractor to install the application or any updates.
- 7) Actual deployment will occur once the application has been shown to work within the AMS Internet/Intranet environment, according to contract specifications.
- 8) The contractor will hold a post-deployment, knowledge-transfer meeting with ITG and program personnel to discuss system maintenance and provide detailed system documentation.
- 9) Copies of the application software will be provided to ITG with detailed installation procedures.

IX. QUESTIONS

If you have any questions concerning browser-based application development, contact the E-Business Branch, Information Technology Group.

/s/

A. J. Yates
Administrator